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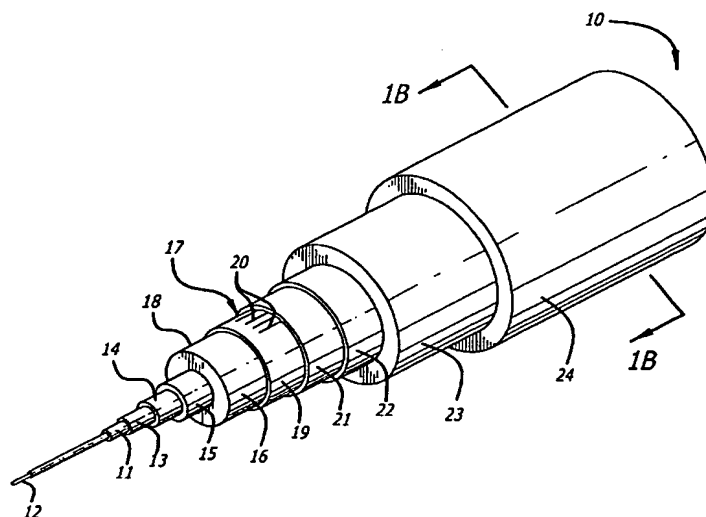
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(54) Title: RUGGED FIBER OPTIC ARRAY



(57) Abstract: An array of fiber optic hydrophones or geophones is formed by winding of optical fiber around a continuous, yet flexible cylindrical core. The cylindrical core contains an elastomer filled with a specified percentage of voided plastic microspheres. The elastomer provides the necessary radial support of the optical fiber, and with the included voided microspheres, provides sufficient radial compliance under acoustic pressure for proper operation of the hydrophone. The cylindrical core can be made in very long sections allowing a plurality of fiber optic hydrophones to be wound onto it using a single optical fiber, with individual hydrophone elements separated by integral reflectors such as Fiber Bragg Gratings (FBGs). The center of the core may include a strength member and a central hollow tube for the passing of additional optical fibers. The aforementioned hydrophone array is then packaged within a protective outer coating or coatings as required for the specified application.